

Appendices A and B submitted herewith. Appendix A is a marked-up copy of the claim and Appendix B is a clean copy of the claim.

REMARKS

Claims 1-4 and 6-11 are presently pending in the captioned application with claim 1 being amended and new claims 10 and 11 being added.

Contrary to the Office Action's assertions, claims 1-7 were not pending at the time of mailing. Instead, claims 1-4 and 6-9 were pending pursuant to a preliminary amendment filed on March 29, 2001, deleting claim 5 and adding new claims 8 and 9. Accordingly, claims 1-4 and 6-11 are presently pending subject to the presently filed claim amendments.

Claim 1 has been amended to recite the further limitation of an extrusion temperature, support for which can be found at page 4, lines 12-17 and at page 11, lines 32-35.

Support for new claims 10 and 11 can be found at page 12, lines 15-24 and at page 13, lines 21-29.

No new matter within the meaning of §132 has been added by any of the amendments.

Accordingly, Applicants respectfully request the Examiner to reconsider and allow all claims pending in this application.

1. Rejection of Claims 1-2
under 35 U.S.C. §102(b)

The Office Action rejects claims 1-2 under 35 U.S.C. §102(b) as being anticipated by US 5,712,031 ("Kelch et al."). The Office Action states:

The KELCH et al. discloses a laminate film comprising a polyester substrate layer coated with an adhesive layer comprising a terpolymer of ethylene, 3-10 wt% ethylenically unsaturated carboxylic acid, and 3-25 wt% methyl acrylate or methacrylate, wherein the adhesive layer is applied to the substrate layer by extrusion (line 9-20, 45-50, col. 3; line 37, col. 4).

Applicants respectfully traverse the rejection because Kelch et al. is not a proper 102(b) reference against claims 1 and 2. In particular, Kelch et al. fails to teach each and every claimed limitation insofar as no teachings relate to the claimed range of extrusion temperatures of claim 1 or the claimed density of an ethylene/ α -olefin copolymer resin of claim 2.

Turning to the rule, the Federal Circuit has spoken clearly and at some length on the question of anticipation. Anticipation requires that **each and every** element of the claimed invention be disclosed in a **single** prior art reference. Verdegaal Bros. v. Union Oil Co. of California, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987).

Those elements must be **expressly** disclosed as in the claim. In re Bond, 15 USPQ2d 1566 (Fed. Cir. 1990).

The prior art reference must also be enabling, thereby placing the allegedly disclosed matter in the possession of the public. In re Brown, 329 F.2d 1006, 1011, 241 USPQ 245, 249 (C.C.P.A. 1964). In order to accomplish this, the reference must be so particular and definite that from it alone, without experiment or the exertion of his own inventive skill, any person versed in the art to which it pertains could construct and use it. Id. at 250. Furthermore, any inherency analysis is prohibited in making a 102(b) anticipation rejection.

In the present application, independent claim 1 recites a laminated film obtained by extrusion-laminating, onto at least one surface of a polyester film, an ethylene/unsaturated carboxylic acid/(meth)acrylic acid ester copolymer or a mixture resin composition thereof with an ethylene/unsaturated carboxylic acid copolymer and/or an ethylene/(meth)acrylic acid ester copolymer,

the amount of the unsaturated carboxylic acid component being from 1 to 12% by weight and

the amount of the (meth)acrylic acid ester component being from 2 to 25% by weight with respect to the total amount of said extrusion-laminated resin components,

wherein, said laminated film is obtained by extrusion-

laminating at an extrusion temperature of from 280 to 340°C as the resin temperature measured just under T-die.

Nowhere does Kelch et al. teach the limitation of an extrusion temperature of from 280 to 340°C as the resin temperature measured just under T-die. Since each and every claimed limitation is not taught within the four corners of the reference, Kelch et al. is not a proper 102(b) reference against claim 1.

Regarding independent claim 2, claim 2 recites a (b) component of not more than 30 parts by weight of an ethylene/ α -olefin copolymer resin having a density of 840 to 900 kg/m³.

However again, Kelch et al. utterly fails to teach any limitation regarding the density of the ethylene/ α -olefin component as claimed in claim 2.

Accordingly, Applicants respectfully submit that the presently claimed invention is not anticipated by Kelch et al. and respectfully request the Examiner to reconsider and withdraw the 102(b) rejection against claims 1 and 2.

2. Rejection of Claims 1-2 and 6
under 35 U.S.C. §103(a)

The Office Action rejects claims 1-2 and 6 under 35 U.S.C. §103(a) as being unpatentable over Kelch et al. The Office Action states:

The KELCH et al. discloses a laminate film comprising a polyester substrate layer coated with an adhesive layer comprising a terpolymer of ethylene, 3-10 wt% ethylenically unsaturated carboxylic acid, and 3-25 wt% methyl acrylate or methacrylate, wherein the adhesive layer is extrusion coated onto the substrate layer (line 9-20, 45-50, col. 3; line 37, col. 4) and wherein the film can surface-treated prior to coating.

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to apply a conventional surface pretreatment such as oxidation to polyester substrate layer prior to extruding the ethylene terpolymer coating in order to improve interlayer adhesion. One of ordinary skill in the art would have adjusted the degree of surface modification as indicated in claim 6 depending on the materials used.

Applicants respectfully traverse this rejection because the Office Action fails to establish all three prongs necessary for a *prima facie* case of obviousness. Specifically, one of ordinary skill in the art would not have been motivated to vary extrusion temperatures or the density of the ethylene/ α -olefin component based on the teachings of Kelch et al. Even assuming *arguendo* that a *prima facie* has been established, Applicants rebut the presumption with evidence of unexpectedly improved interlayer adhesion properties when compositions are made according to the presently claimed invention.

Turning to the rule, the Federal Circuit held that a *prima*

facie case of obviousness must establish: (1) some suggestion or motivation to modify the references; (2) a reasonable expectation of success; and (3) that the prior art references teach or suggest all claim limitations. Amgen, Inc. v. Chugai Pharm. Co., 18 USPQ2d 1016, 1023 (Fed. Cir. 1991); In re Fine, 5 USPQ2d 1596, 1598 (Fed. Cir. 1988); In re Wilson, 165 USPQ 494, 496 (C.C.P.A. 1970).

A *prima facie* case of obviousness must also include a showing of the reasons why it would be obvious to modify the references to produce the present invention. See Ex parte Clapp, 277 USPQ 972, 973 (Bd. Pat. App. & Inter. 1985). The Examiner bears the initial burden to provide some convincing line of reasoning as to why the artisan would have found the claimed invention to have been obvious in light of the teachings. Id. at 974.

Even if a *prima facie* case of obviousness has been established, secondary considerations such as commercial success, long felt but unsolved need, failure of others, and unexpected results may nevertheless give rise to a patentable invention. Graham v. John Deere Co., 148 U.S.P.Q. 459 (1966). Where the claimed and prior art products are substantially similar, a *prima facie* case of obviousness can also be rebutted by demonstrating that the prior art products do not possess the characteristics of the claimed invention. In re Best, 196 U.S.P.Q. 430, 433 (C.C.P.A.

1977).

In the present application, the laminated film of claim 1 contains the limitation of an extrusion temperature of from 280 to 340°C as the resin temperature measured just under T-die while claim 2 contains the limitation of a (b) component of not more than 30 parts by weight of an ethylene/ α -olefin copolymer resin having a density of 840 to 900 kg/m³. Claim 6 contains both limitations directed to extrusion temperatures and density of the ethylene/ α -olefin component.

However, nowhere does Kelch et al. teach the limitation of an extrusion temperature of from 280 to 340°C as the resin temperature measured just under T-die or a limitation regarding the density of the ethylene/ α -olefin component. All Kelch et al. discloses is a laminated film obtained by coating a terpolymer of ethylene/3-10wt% ethylenically unsaturated carboxylic acid/3-25wt% methyl acrylate or methacrylate onto a polyester substrate layer. Although Kelch et al. discloses that "[t]he adhesive was extrusion coated at 425°F [218°C]" (col. 4, lines 66 to 67) and in Example 6, that the extrusion-laminating was extruded at 420°F, these extrusion temperatures are outside the claimed limitations of between 280 to 340°C.

Furthermore, Kelch et al. does not teach that the extrusion-laminated resin is made by blending said terpolymer or resin

composition including said terpolymer with an ethylene/ α -olefin copolymer having a specific range of density at the specific blending ratio to enhance interlayer adhesiveness to the polyester as claimed in claim 2.

Applicants traverse any possible assertion that the presently claimed limitations are merely optimization of results-effective variables because one of ordinary skill at the time of invention would not have been motivated to vary extrusion temperatures or density of the ethylene/ α -olefin component based on the disclosure of Kelch et al. or what was known in the state of the art at the time invention. All one of ordinary skill would have known at the time of invention was that pre-treatment was required to improve interlayer adhesion between a polyester film and a laminated resin.

Pre-treatment methods usually effect the extrusion-laminate after an anchor-coating agent has been applied onto the surface of the polyester film or ozone treatment on the surface of a molten resin film coupled with a surface oxidizing treatment such as corona treatment or flame treatment. In contrast, the presently claimed invention is directed towards novel processing conditions which were not previously known to affect the desirable interlayer adhesion strengths. Accordingly, the presently claimed limitations are not results-effective variables.

Applicants further note that any possible admonition that it

would have been "obvious to try" to vary extrusion temperatures or density is improper. This is because in some cases, what would have been "obvious to try" would have been to vary all parameters or try each of numerous choices until one possibly arrived at a successful result. Since Kelch et al. does not give any indication that the claimed limitations result in improved adhesive characteristics, it would not have been obvious to try to make a laminated film composition incorporating the claimed limitations. See In re O'Farrell, 853 F.2d 894, 903, U.S.P.Q.2d 1673, 1681 (Fed. Cir. 1988). Accordingly, a *prima facie* case has not established

Even assuming *arguendo* that a *prima facie* has been established, Applicants rebut the presumption with evidence of unexpectedly improved interlayer adhesion properties. In particular, the inventive aspect of the presently claimed extrusion temperatures are shown in the Comparative Examples of the present specification.

Comparative Example 1 demonstrates that the interlayer adhesion force is undesirably small (e.g. 0.1N/15mm) when the extrusion temperature is lower than the claimed lower limit of 280°C of the presently claimed invention. Similarly, undesirable foaming occurred when the extrusion temperature was above the presently claimed range. See Comparative Example 2.

Comparative Examples 6-10, on the other hand, show that the

claimed density of the ethylene/ α -olefin copolymer results in unexpectedly superior adhesive properties. In particular, when the density of the ethylene/ α -olefin copolymer exceeds the upper limit of the claimed range, adhesion to the polyester film does not improve. Moreover, when the density is lower than the claimed range, the resin becomes so sticky that the processability of the resulting resin is severely hampered during the further extrusion-lamination steps. See Comparative Examples 6-10.

Clearly, a *prima facie* case of obviousness has not been established. Kelch et al. cannot be applied against the presently claimed invention and there simply is no suggestion in the prior art at the time the invention was made to vary extrusion temperatures or density of the ethylene/ α -olefin component to result in improved adhesive properties. However, even assuming that a *prima facie* case has been established, the presently claimed invention achieves unexpected results over Kelch et al.

Accordingly, Applicants respectfully submit that the presently claimed invention is unobvious over Kelch et al. and respectfully request the Examiner to reconsider and withdraw the rejection of the presently pending claims 1, 2 and 6 under 35 U.S.C. §103.

3. Rejection of Claims 1-4, 6 and 7
under 35 U.S.C. §103(a)

The Office Action rejects claims 1-2 and 6 under 35 U.S.C. §103(a) as being unpatentable over US 4,732,944 ("Smith, Jr.") in view of US 3,471,460 ("Rees") and Schimtz, Peter et al., "Films." Ullman's Encyclopedia of Industrial Chemistry, 5th ED., vol. A11, 1988, pp 85-89. The Office Action states:

SMITH, JR discloses a laminates comprising a polyester film layer, an ionomer layer, and optionally an additional plastic layer wherein the ionomer is typically derived from ethylene, (meth)acrylic acid, and/or (meth)acrylate wherein the ionomer may be partially neutralized with up to 90% of a metal cation such as sodium (Figure 11: line 62, col. 4 to line 15, col. 5: lines 43-55, col. 8; lines 38-47, col. 11) as recited in claims 1-4. However, the reference does not explicitly disclose the recited terpolymer.

REES discloses that it is well known in the art to utilize ethylene terpolymers comprising at least 50 mol% ethylene, 0.2-25 mol% unsaturated carboxylic acid, and up to 49.8 mol% of a third monomer such as methyl methacrylate or ethyl acrylate (line 30, col. 1 to line 72, col. 2) as the basis for modified resins with improved mechanical and elastic properties.

ULLMANN'S discloses that it is well known in the art to use extrusion to apply coatings to preexisting films and also that it is well known in the art to surface treat films prior to coating in order to improve interlayer adhesion and coating characteristics (section 2.4).

It would have been obvious to a person of

ordinary skill in the art at the time the invention was made to apply a conventional surface pretreatment such as oxidation to the polyester substrate layer prior to using a conventional coating method such as extrusion to form an ionomeric layer on a polyester substrate in order to improve interlayer adhesion. One of ordinary skill in the art would have selected a polar material which is compatible and adherent to the ionomer layer for use in the one or more plastic base layers of the laminate (as indicated in claims 5, 7) and/or selected the degree of surface modification of said base layer(s) as indicated in claim 6 in order to prevent delamination.

Applicants respectfully traverse this rejection because all the claimed limitations have not been taught by the cited references. Even assuming *arguendo* that a *prima facie* exists, the Comparative Examples of the specification provide evidence that the presently claimed invention possesses novel and patentable characteristics over known products as stated herein *supra*.

Presently pending claims 1-4 and 6-11 are unobvious over the cited references because none of the references teach extrusion-lamination at a resin temperature of from 280 to 340°C or the specific blend resin comprising an ethylene/ α -olefin copolymer having a specific density at the specific blending ratio to enhance interlayer adhesiveness to the polyester.

Clearly, a *prima facie* case of obviousness has not been established. Each and every claimed limitation has not been taught

by the cited references and there simply is no suggestion in the prior art at the time the invention was made to vary extrusion temperatures or density of the ethylene/ α -olefin component to result in improved adhesive properties. Even assuming that a *prima facie* case has been established, the presently claimed invention achieves unexpected results as shown in the Comparative Examples.

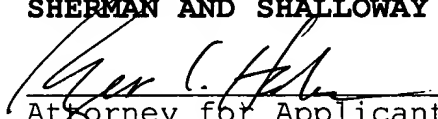
For all these reasons, Applicants respectfully submit that the presently claimed invention is unobviousness over the cited references and respectfully request reconsideration and withdrawal of the rejections of claims 1-4 and 6-9 under 35 U.S.C. §103.

CONCLUSION

In light of the foregoing, Applicants submit that the application is now in condition for allowance. The Examiner is therefore respectfully requested to reconsider and withdraw the rejection of the pending claims and allow the pending claims. Favorable action with an early allowance of the claims pending is earnestly solicited.

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